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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,551	07/16/2003	Dean McArthur	555255012476	8443

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JOSEPH M. SAUER
JONES DAY REAVIS & POGUE
NORTH POINT, 901 LAKESIDE AVENUE
CLEVELAND, OH 44114

EXAMINER	
CHAWAN, VIJAY B	

ART UNIT	PAPER NUMBER
2626	

DATE MAILED: 06/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/620,551	MCARTHUR ET AL.	
	Examiner	Art Unit	
	Vijay B. Chawan	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-15 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-15 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Oath/Declaration

1. The oath lacks the statement of venue. Applicant is required to furnish either a new oath or declaration in proper form, identifying the application, by application number and filing date, or a certificate by the officer before whom the original oath was taken stating that the oath was executed within the jurisdiction of the officer before whom the oath was taken when the oath was administered. The new oath or declaration must properly identify the application of which it is to form a part, preferably by application number and filing date in the body of the oath or declaration. See MPEP §§ 602.01 and 602.02. Title mentioned in the oath submitted on 12/08/03 "Signal enhancement for voice coding" does not appear to be the title of the present application, which is "Noise suppression circuit for a wireless device." Please clarify either why the title is different, or correct the oath by submitting a new Oath and Declaration to include the actual title of the invention. Also the oath does not identify the chain of continuity.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct

from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1-15 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-14, 25 and 33 of U.S. Patent No. 6,647,367. Although the conflicting claims are not identical, they are not patentably distinct from each other because they are directed toward similar subject matter claimed in the patented claims and are similar in scope and content.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Sih et al., (5,920,834).

As per claim 1, Sih et al., teach a wireless device comprising:

a receiver operable to receive an analog input signal (Fig.1, item 6);

an input converting stage coupled to the receiver and operable to convert the analog input signal into a digital input signal (Fig.1, item 8);

a filter stage coupled to the digital input signal and operable generate a filtered digital signal corresponding to a first control signal and a second control signal, the first control signal having a filter coefficient and the second control signal having a signal-to-noise ratio value (Fig.1, item 12);

an output converting stage coupled to the filtered digital signal and operable to generate a filtered analog output signal (Col.1, lines 22-34); and,

an analysis stage coupled to the input converting stage and the filter stage, the analysis stage being operable receive the digital input signal from input converting stage and the filtered digital signal from the filter stage and to generate the first and second control signals (Fig.2, item 38, Fig.4, item 260).

As per claim 2, Sih et al, teach the wireless device of claim 1, wherein the first control signal is generated by a noise suppression filter estimator coupled to the digital input signal in a feed-forward signal path and to the filtered digital signal in a feed-back signal path (Fig.2, item 38).

As per claim 3, Sih et al, teach the wireless device of claim 2, further comprising an auditory mask estimator coupled between the filtered digital signal and the noise suppression filter estimator that computes an auditory masking level value which is used by the noise suppression filter estimator to generate the first control signal (Col.1, lines 22-34).

As per claim 4, Sih et al, teach the wireless device of claim 2, wherein the feed-forward signal path comprises a normalized coherence estimator coupled to the digital input signal that computes a normalized coherence value which is used by the noise suppression filter estimator to generate the first control signal (Col.1, lines 22-34).

As per claim 5, Sih et al, teach the wireless device of claim 4, wherein the normalized coherence estimator is also coupled to a signal to noise ratio estimator which generates the second control signal (Col.9, lines 2-16).

As per claim 6, Sih et al, teach the wireless device of claim 2, wherein the feed-forward signal path comprises a signal to noise ratio estimator circuit which generates the second control signal, the second control signal being coupled to a normalized coherence estimator that computes a normalized coherence value and a coherence mask that computes a coherence mask that computes a coherence mask value, wherein the normalized coherence value and the coherence mask value are used by the noise suppression filter estimator to generate the first control signal (Col.1, lines 22-34).

As per claim 7, Sih et al, teach the wireless device of claim 1, wherein the input converting stage includes an analog to digital converter and a Fast Fourier Transform

circuit, the digital input signal comprising frequency domain digital signals (Fig.2, Col.6, lines 22-34).

As per claim 8, Sih et al, teach the wireless device of claim 1, wherein the receiver is a microphone (Fig.1, item 2).

As per claim 9, Sih et al, teach the wireless device of claim 1, wherein the filter stage further comprises a noise suppressor coupled to the first control signal and a signal mixer coupled to the second control signal (Col.1, lines 22-34).

As per claim 10, Sih et al, teach the wireless device of claim 1, wherein the filter stage and the analysis stage comprise a digital signal processor (Fig.2, Col.6, lines 22-34).

As per claim 11, Sih et al, teach the wireless device of claim 1, wherein the noise suppressor comprises a digital filter (Fig.2, Col.6, lines 22-34).

As per claim 12, Sih et al, teach the wireless device of claim 1, wherein the output converting stage comprises an Inverse Fast Fourier Transform circuit and a digital to analog converter (Fig.1, item 14, claimed features are inherent in the disclosed transceiver).

As per claim 13, Sih et al, teach the wireless device of claim 1, wherein the filter stage enhances voice components and suppresses noise components in the digital input signal (Fig.2, Col.6, lines 22-34).

As per claim 14, Sih et al., teach a method for suppressing noise in a wireless device, comprising:

receiving an analog input signal (Fig.1, item 6);

converting the analog input signal into a digital input signal (Fig.1, item 8);

filtering the digital input signal to generate a filtered digital signal corresponding to a first control signal and a second control signal, the first control signal having a filter coefficient and the second control signal having a signal-to-noise ratio value (Fig.1, item 12);

converting the filtered digital signal to a filtered analog output signal (Col.1, lines 22-34); and,

analyzing the digital input signal and the filtered digital signal to generate the first and second control signals (Fig.2, item 38, Fig.4, item 260).

As per claim 15, Sih et al., teach a wireless device, comprising:

a microphone to receive an analog input signal (Fig.1, item 6);

means for converting the analog input signal into a digital input signal (Fig.1, item 8);

means for filtering the digital input signal to generate a filtered digital input signal based upon a first control signal and a second control signal, the first control signal including a filtering coefficient and the second control signal including a signal-to-noise ratio value (Fig.1, item 12);

means for converting the filtered digital signal into a filtered analog output signal (Col.1, lines 22-34); and,

means for analyzing the digital input signal and the filtered digital input signal to generate the first and second control signals (Fig.2, item 38, Fig.4, item 260).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

McArthur et al., (6,647,367) teach a noise suppression circuit.

McArthur et al., (6,473,733) teach a signal enhancement for voice coding.

Isabelle (6,122,610) teaches noise suppression for low bitrate speech coder.

Hasegawa (5,563,944) teaches echo canceller with adaptive suppression or residual echo level.

Zack (6,088,668) teaches a noise suppressor having weighted gain smoothing.

Helf et al., (5,550,924) teaches reduction of background noise for speech enhancement.

Borth et al., (4,628,529) teach a noise suppression system.

Romesburg (5,903,819) teaches a noise suppressor circuit and associated method for suppressing periodic interference component portions of a communications signal.

Taege (6,636,604) teaches a method and device for suppressing echo in a hands free device such as a telephone.

Mattila et al., (6,810,273) teach noise suppression to suppress noise in a signal containing background noise.

Chandran et al., (6,591,234) teach a method for adaptively suppressing noise.

Johnson (6,425,253) teaches a method and apparatus for enhancing noise-corrupted speech.

Turner (6,097,820) teaches a system and method for suppressing noise in digitally represented voice signals.

Borth et al., (4,630,305) teach automatic gain selector for a noise suppression system.

Romesburg et al., (6,163,608) teach methods and apparatus for providing comfort noise in communications systems.

Steengard-Madsen (5,982,317) teaches oversampled D/A converter based on nonlinear separation and linear recombination.

Adlersberg et al., (5,012,519) teach a noise reduction system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vijay B. Chawan whose telephone number is (571) 272-7601. The examiner can normally be reached on Monday Through Friday 6:30-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571) 272-7602. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Vijay B. Chawan
Primary Examiner
Art Unit 2654

vbc
5/29/06

VIJAY CHAWAN
PRIMARY EXAMINER